render chloral more efficacious in strychnia intoxication by combining it with some other antitetanic medicament. In conjunction with Hessling, he has employed first a mixture of chloral and potassium bromide, which has been vaunted by Bivine. This mixture is less efficacious than chloral alone. The bromide alone does not prevent, but only retards the convulsions. Alcohol is not so efficacious as chloral. Since physostigmine is now met with in commerce in a state of purity, and free from convulsant calabarine, it has been demonstrated that it is eminently paralyzing. Rabbits to which an otherwise fatal dose of strychnia is given do not succumb, if they be previously brought well under the influence of physostigmine. Husemann's researches may thus be summarized from a practical point of view. In strychnia-poisoning neither potassium bromide, nor physostigmine, nor alcohol should be employed; chloral should be given unmixed with other medicaments.—*London Med. Record*, Jan. 15, 1882.

ROSSBACH (*Pflüger's Archiv*, Bd. xxi.) replies to the attack made upon his conclusions by Heidenhain and Luchsinger, that there is no reciprocal antagonism of poisons, a conclusion which has received confirmation at the hands of Husemann, Mariné, and Nawroki. Rossbach, working in conjunction with Anrep, arrives at the following conclusions: 1. In the sudoriparous and salivary apparatus of animals (dogs) two parts are to be taken into account in considering the actions of poisons, such as atropine, pilocarpine, and physostigmine—the nervous apparatus and the cellulo-glandular portion; and these are in the same relation as the terminal motor apparatus and the contractile cells. 2. The nervous part of these glands is influenced by very small doses of the poisons; paralyzed by atropine, excited by pilocarpine and digitaline; the cellulo-glandular portion remaining insensible to the same doses. Hence small doses of atropine diminish the salivary and sudoriparous secretions only by paralysis of the nervous apparatus, and it is by exciting this apparatus that pilocarpine and physostigmine increase those secretions. 3. In relatively larger doses, the cellulo-glandular, as well as the nervous, portion of the apparatus is affected by the poisons. Large quantities of atropine check the secretion of sweat and saliva by paralyzing both those portions of the glands, whilst large quantities of pilocarpine and of physostigmine exaggerate it by simultaneous excitation of those same parts of the glands. 4. Atropine acts in the above-mentioned manner in much smaller doses than pilocarpine and physostigmine. In other words, the glandular portions are much more sensitive to atropine than to the two latter alkaloids. 5. Atropine surpasses in its action pilocarpine and physostigmine when given in corresponding doses. 6. If atropine be given on the one hand and pilocarpine on the other, either simultaneously or successively, the action of atropine always preponderates for corresponding doses of the other poison. 7. If atropine be given in small doses, so as to paralyze the nervous and leave intact the cellulo-glandular portions of the glands, the latter may be excited by large doses of pilocarpine or of physostigmine. The exaggerated secretion which results simulates a double physiological antagonism. 8. In no case does pilocarpine annihilate the action of atropine upon the pupil.—*London Med. Record*, Jan. 15, 1882.

Tolerance of Poisons.

ROSSBACH has studied this subject (*Pflüger's Archiv*, Bd. xxi.), and arrives at the following conclusions: 1. Tolerance of poisons comes on very rapidly (except in nervous and hysterical subjects), and it is thus that at the third or fourth cigar symptoms of tobacco-poisoning cease, and that the quantity of alcohol necessary to produce intoxication increases with use. When atropine is given to dogs daily, certain symptoms are observed at first which disappear in the course of a few days—such as hyperæsthesia of the skin, trembling of the body, etc. The animals then become as lively and vivacious as unpoisoned animals. 2. The organs of man and of animals become equally habituated to poisons, and in the same organism each organ behaves differently towards these. 3. There are organs which never become habituated to poisons, in the sense that they always behave towards them as at the beginning of the administration. It is thus that morphia, always administered in the same dose, induces sleep for weeks or months; that the smoker, consuming a uniform quantity of tobacco, feels, at the end of years, the same beneficial influence continued. It is the same with tea and coffee. Certain organs are influenced by the use of atropine after long usage as at the commencement—the pupil always dilates, the salivary secretion is diminished. It is precisely those organs which are most impressionable which are least influenced by habitual use of poisons. 4. Nevertheless those organs, by the the prolonged use of a poison, remain influenced by it for a period of time which progressively diminishes; hence drunkards, and those addicted to morphine, experience the need of more and more frequent doses of alcohol or of morphia. 5. Another series of organs reacts differently towards the same poison, according as it is administered for the first time or after a lengthened interval. Thus atropine acts at first upon the heart by paralyzing the vagus, whilst at a later period it paralyzes the motor nerves and the muscles of that organ. 6. Again, there are organs which become habituated to certain poisons (tobacco, alcohol, morphia), so that after a certain time they present no functional derangement. 7. These propositions are not valid, except where the dose remains the same. When the dose is increased, however slowly, a time comes when the poison again exhibits its action. 8. In an organism accustomed to a certain dose of the poison, a much larger dose acts in the same manner as a small dose on an unhabituated organism. 9. In general, the symptoms of chronic poisoning are extended to more organs and functions than those of acute poisoning. Thus in chronic morphia-poisoning we observe restlessness, insomnia, hyperæsthesia, neuralgia, an exaggeration of reflex movements, anorexia, malaise, vomiting, palpitation, albuminuria, malnutrition; whilst in acute morphinism purely nervous symptoms alone are observed. 10. In man and animals, if the dose of the poison be not continually augmented, but be kept at medium quantity, this amount may be supported with impunity for the rest of life. The proof of this is, that thousands of persons arrive at an advanced age who have taken for long periods tobacco, alcohol, coffee, or opium. 11. If the use of the poison be broken off at the end of a relatively short time—weeks, months, or it may be, in exceptional cases, years—health is restored in the course of a few days. But if the cessation take place after a more considerable period of use of the poison, certain morbid phenomena are observed, such as trembling, acute delirium, intellectual feebleness, and lowness of spirits. If now the use of the poison be recommenced, these symptoms rapidly disappear. 12. There is an epoch at which reparation of tissue is still possible, and one when this is no longer possible. In this last case, there is a notable change in the chemical composition of the substratum of the tissues; and this modification is appreciable by the microscope in certain organs, as, *e. g.*, the liver. 13. In order to explain the effects of chronic poisoning, we may say that the organs are not more impressionable to normal stimuli (carbonic acid, ferments), but only to the poison; failing this, the body is deprived of excitants, and a profound depression of most of the functions is produced. 14. The fact that certain organs end by being no longer impressionable to poisons, is comparable to the immunity which certain organisms enjoy towards certain organized poisons (those of infectious diseases) when once they have been the seat of their action.—*London Med. Record*, Jan. 15, 1882.